

## **REMARKS**

The Office Action of September 15, 2010 has been considered by the Applicants. Claims 1, 2, and 22 are amended. Claims 1-2 and 21-25 are pending. Reconsideration of the Application is requested.

The specification was objected to as allegedly failing to provide proper antecedent basis for the claimed subject matter.

Claims 1, 2, and 21-25 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

Applicants traverse the rejection and objection.

According to the Examiner, the specification did not provide support for the phrase wherein the titanium dioxide is doped "only with elemental particles". Applicants submit that explicit and implicit support exists for this phrase. At the top of page 5, first paragraph, reference is made to "metallic" manganese, iron, etc. Please also note the phrasing of "a metal or compound thereof" in the second paragraph on page 5 of the specification. Numerous references are made to "a metal or compound thereof", thus distinguishing between the metal and compounds containing the metal. Applicants are narrowing the scope of the claim to specify that the titanium oxide particles are doped with the metals, and not the compounds thereof. The specification and original claims describe metals separately from compounds of those metals. Applicants are narrowing the claims so that the particles are metallic or elemental only. Support is present for this claim amendment.

Applicants request withdrawal of the rejection and objection.

Claims 1-2 and 25 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Ogata '463 (JP2002212463A).

Claim 21 was rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Ogata '463.

Claims 21-24 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Ogata '463 in view of Elfenthal.

Claims 21-24 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Ogata '463 in view of DE2545243.

Applicants traverse the rejections.

According to the Examiner, Ogata teaches a titanium oxide liquid with titanium oxide particles in anatase or amorphous form. The particles can be doped with copper, iron, manganese, or nickel. When in amorphous form, the composition is not photocatalytically active.

Applicants have amended the claims to state that the titanium oxide is in anatase form. Paragraph [0021] of Ogata states that anatase type has catalytic ability. Thus, it would not be obvious that photocatalytic ability could be removed.

Applicants request withdrawal of the rejections based on Ogata.

Claims 1 and 21-23 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Elfenthal (U.S. Patent No. 5,451,252).

Claims 2 and 24-25 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Elfenthal in view of Ogata '463.

Applicants traverse the rejections together.

According to the Examiner, Elfenthal disclosed titanium oxide compounds doped with metal ions which may be copper, manganese, nickel, iron, and compounds thereof. Because the materials were the same as those claimed, the loss of photocatalytic activity was expected to be as claimed.

Applicants disagree. Elfenthal states, in column 3, lines 37-64, that his dopants are metal ions. In contrast, the present claims are in the form of a composite of titanium oxide particles and elemental metallic particles, i.e. two materials that remain separate and distinct within the composite itself. In other words, the metal of the present claims is not in the form of ions. As discussed on pages 8 and 15 of the original specification, the potential difference between the titanium oxide particles and the elemental metallic particles stabilizes the unstable active state of hydroxyl radicals or singlet oxygen atoms, thus preventing photooxidative degradation. This difference between the present claims and Elfenthal is not obvious.

Applicants request withdrawal of the rejections based on Elfenthal.

Claims 1 and 21-23 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over DE2545243.

Claims 2 and 24-25 were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over DE2545243 in view of Ogata '463.

Applicants traverse the rejections together.

According to the Examiner, DE2545243 taught light stable titanium oxide compounds doped with metal ions which may be copper or manganese. Because the materials were the same as those claimed, the loss of photocatalytic activity was expected to be as claimed.

Applicants disagree. The English abstract of DE2545243 provided by the Examiner states that the titanium dioxide is calcined with a compound containing ions, tempered, has ions added if necessary, and is then dried. Again, the present claims are in the form of a composite of titanium oxide particles and elemental metallic particles, and the metal of the present claims is not in the form of ions. This difference between the present claims and DE2545243 is not obvious.

Applicants request withdrawal of the rejections based on DE2545243.

### CONCLUSION

For the above reasons, all pending claims (1-2 and 21-25) are in condition for allowance. Withdrawal of the rejections and issuance of a Notice of Allowance is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he is hereby authorized to call Jay F. Moldovanyi, at telephone number 216-363-9000, Cleveland, OH.

It is believed that no fee, other than a three-month extension of time, is due in conjunction with this response. If, however, it is determined that fees are due, authorization is hereby given for deduction of those fees, other than the issue fees, from Deposit Account No. 06-0308.

Respectfully submitted,

Fay Sharpe LLP

March 4, 2011  
Date

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